Remarks/Arguments

This Response is provided in response to a final Office Action mailed January 24, 2005, in which claims 1-6, 8-13, and 15-20 were rejected under 35 U.S.C. §102(b) as being anticipated by prior art, and further rejected claims 7, 14, and 21 under 35 U.S.C. §103(a) as being unpatentable over prior art.

A telephone interview was conducted on April 18, 2005 between Examiner Williams and Applicant's attorney Daniel Dooley. The Applicant thanks the Examiner for granting and participating in the April 18, 2005 after final telephone interview, and most particularly for suggesting a relationship between the concave recess 50 and centerline 54 of Fig. 6 be claimed to distinguish the present invention from the prior art of record.

The addition of the terms vertex, center of curvature, and principle axis in reference to the concave recess of amended independent claims 1, 8, and 15 does not add new matter because, as one skilled in the art appreciates, the terms are inherent attributes present in any concave surface (see Exhibit A), and are therefore inherent characteristics of the concave recess of the present invention. Because the terms are inherent characteristics of the concave recess of the present invention, the Applicant has offered amendments for inclusion in the specification and drawings. The amendments to the specification and drawings have been made to provide an enhanced understanding of the present invention as claimed by independent claims 1, 8, and 15.

The amendments to independent claims 1, 8, and 15 do not add new subject matter; place each independent claim in condition for allowance; and broaden the scope of each independent claim by removing unnecessary claim limitations. The amendments to dependent claims 2-7 (depending from independent claim 1); claims 9-14 (depending from independent claim 8); and claims 16-21 (depending from independent claim 15), have been made to maintain consistence of terminology between the dependent claims and their corresponding independent claims, and to more clearly point out and distinctly claim the subject matter considered by the Applicant as his invention.

In addition to the inclusion of Exhibit A, the Applicant is including a second attachment, Exhibit B. Exhibit B, shows the results of an independent test comparing the benefits of one embodiment of the present invention over prior art. The limitations of "a

principle axis of the concave recess passing through a center of curvature and a vertex of the concave recess is substantially perpendicular to and offset from a centerline of the main body portion" within independent claims 1, 8, and 15, is a significant reason for the unexpected level of improved performance of the present invention over prior art.

Claim Amendments

The Applicant has provided amendments to claims 1-21 in response to the telephone interview with Examiner Williams on April 18, 2005. The amendments do not narrow the scope of claims 1-21, nor introduce new matter into claims 1-21.

Rejection of Claims Under 35 U.S.C. §102(b)

The Office Action rejected claims 1-6, 8-13, and 15-20 under 35 U.S.C. §102(b) as being anticipated by United States Design Patent No. 229,739 issued to Charles D. Briddell, January 1, 1974 (Briddell '739).

Anticipation means a lack of novelty, and is a question of fact which is reviewed by the reviewing court using a substantial evidence standard. *Brown v. 3M*, 60 USPQ2d 1375 (Fed. Cir. 2001); *Baxter Int'l, Inc. v. McGaw, Inc.*, 47 USPQ2d 1225 (Fed. Cir. 1998). To anticipate a claim, every limitation of the claim must be found in a single prior art reference, arranged as in the claim. *Karsten Mfg. Corp. v. Cleveland Golf Co.*, 58 USPQ2d 1286 (Fed. Cir. 2001). *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 122 S.Ct. 1831 (2002). Each such limitation must be found either expressly or inherently in the prior art reference. *Schering Corporation v. Geneva Pharmaceuticals, Inc.*, 02-1540, Decided August 1, 2003 (Fed. Cir. 2003).

Briddell '739 fails to identically show the claim limitation of: "a principle axis of the concave recess passing through a center of curvature and a vertex of the concave recess is substantially perpendicular to and offset from a centerline of the main body portion" of claims 1, 8, and 15. Therefore, Briddell '739 fails to provide a basis for an anticipation rejection under 35 U.S.C. § 102(b) of independent claims 1, 8, and 15.

Furthermore, each of the prior art references of record:

United States Design Patent No. 186,021 issued to Thomas Lamb, September 1, 1959 (Lamb '021);

United States Design Patent No. 119,400 issued to O.E. Skelton, March 12, 1940 (Skelton '400);

United States Patent No. 5,692,265 issued to David F. Dalury, December 2, 1997 (Dalury '265);

United States Patent No. 5,946,762 issued to Anthony M. Dionisio, September 7, 1999 (Dionisio '762);

United States Patent No. 6,591,455 issued to Glen Heavenor, July 15, 2003 (Heavenor '455);

United States Patent No. 6,502,314 issued to Michael S. McCatty, January 7, 2003 (McCatty '314);

United States Design Patent No. D470,662 issued to Dana W. Altheimer et al., February 25, 2003 (Altheimer '662);

United States Design Patent No. 353,240 issued to David W. Naterman, December 6, 1994 (Naterman '240);

United States Patent No. 4,380,122 issued to Peter C. Jagger, April 19, 1983 (Jagger '122); and

United States Patent No. 108,141 issued to P. Houseman et al., October 11, 1870 (Houseman '141),

also fail to identically show "a principle axis of the concave recess passing through a center of curvature and a vertex of the concave recess is substantially perpendicular to and offset from a centerline of the main body portion."

Accordingly, the Applicant requests withdrawal of the rejection of claims 1-6, 8-13, and 15-20 under 35 U.S.C. §102(b), and passage of same to allowance.

Rejection of Claims Under 35 U.S.C. §103(a)

The Office Action further rejected claims 7, 14, and 21 under 35 U.S.C. §103(a) as being unpatentable over Briddell '739, and as evidenced by Lamb '021. This rejection is respectfully traversed.

Because claims 7, 14, and 21 depend from either allowable independent claims 1, 8, or 15, and provide further limitations to their respective independent claims, depending claims 7, 14, and 21 stand as patentable claims. Further, because Briddell '739 does not teach or suggest "a principle axis of the concave recess passing through a center of curvature and a vertex of the concave recess is substantially perpendicular to and offset from a centerline of the main body portion" of claims 1, 8, and 15, and Lamb '021 fails to cure the deficiencies of Briddell '739 because Lamb '021 also fails to teach or suggest "a principle axis of the concave recess passing through a center of curvature and a vertex of the concave recess is substantially perpendicular to and offset from a centerline of the main body portion," Briddell '739 alone or in combination with Lamb '021 fails to provide a basis for sustaining a rejection of claims 7, 14, and 21 under 35 U.S.C. §103(a).

Accordingly, the Applicant requests withdrawal of the rejection of claims 7, 14, and 21 under 35 U.S.C. §103(a), and passage of same to allowance.

Conclusion

The Applicant respectfully requests reconsideration and allowance of all of the claims pending in the application. This Response is intended to be a complete response to the final Office Action mailed January 24, 2005.

The Applicant submits that the amendments to the specification, drawings, and claims do not add new matter, distinguish the present invention from all prior art of record, and serves to place the instant Application for Letters Patent in condition for allowance, and accordingly requests the Examiner to pass Patent Application Serial No. 10/822,286 to allowance.

Should any questions arise concerning this response, the Examiner is invited to contact the below listed Attorney.

Respectfully submitted,

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EXHIBIT A

http://www.physicsclassroom.com/Class/refln/U13L3a.html

Concave Mirror

Convex Mirror

Lesson 3: Concave Mirrors

The Anatomy of a Curved Mirror

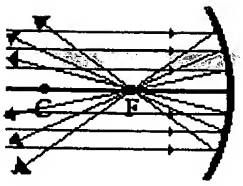
Thus far in this unit, our focus has been the reflection of light off flat surfaces and the formation of images by reflection off of plane mirrors. In Lessons 3 and 4 we will turn attention to the topic of curved mirrors, and specifically curved mirrors which have the shape of spheres. Such mirrors are called **spherical mirrors**. The two types of spherical mirrors are shown in the diagram on the right. Spherical mirrors can be thought of as a portion of a sphere which was sliced away and then silvered on one of the sides to form a reflecting surface. **Concave mirrors** were silvered on the inside of the sphere and **convex mirrors** were silvered on the outside of the sphere. In Lesson 3 we will focus on concave mirrors and in Lesson 4 we will focus on convex mirrors.

Beginning a study of spherical mirrors demands that you first become acquainted with some terminology which will be periodically used. The internalized understanding of the following terms will be essential during Lessons 3 and 4.

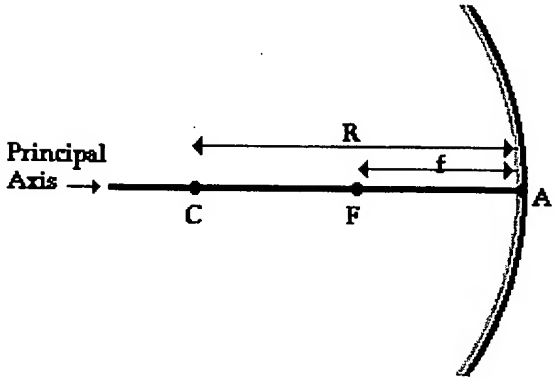
Principal axis	Center of Curvature	Vertex
Focal Point	Radius of Curvature	Focal Length

If a concave mirror is thought of as being a slice of a sphere, then there would be a line passing through the center of the sphere and attaching to the mirror in the exact center of the mirror. This line is known as the **principal axis**. The point in the center of sphere from which the mirror was sliced is known as the **center of curvature** and is denoted by the letter **C** in the diagram below. The point on the mirror's surface where the principal axis meets the mirror is known as the **vertex** and is denoted by the letter **A** in the diagram below. The vertex is the geometric center of the mirror. Midway between the vertex and the center of curvature is a point known as the **focal point**; the focal point is denoted by the letter **F** in the diagram below. The distance from the vertex to the center of curvature is

EXHIBIT A



as the **focal length** (abbreviated by "**f**"). Since the focal point is the midpoint of the line segment adjoining the vertex and the center of curvature, the focal length would be one-half the radius of curvature.



The focal point is the point in space at which light incident towards the mirror and traveling parallel to the principal axis will meet after reflection. The diagram at the right depicts this principle. In fact, if some light from the Sun was collected by a concave mirror, then it would converge at the focal point. Because the Sun is such a large distance from the Earth, any light rays from the Sun which strike the mirror will essentially be traveling parallel to the principal axis. As such, this light should reflect through the focal point. Perhaps you remember the outdoors demonstration in which a pencil was engulfed in flames in a matter of seconds when placed at the focal point of the demonstration mirror. In the demonstration, whatever light from the Sun which hit the mirror was focused at the point where the pencil was. To the surprise of many, the heat was sufficient to ignite the pencil. Wow!

As we proceed through Lesson 3, we will observe the images formed by concave mirrors. Depending on the object location, the image could be enlarged or reduced in size or even the same size as the object; the image could be inverted or upright; and the image will be located in a specific region along the principal axis. To understand these relationships between object and image, you may need to review these vocabulary terms.

Check Your Understanding

1. Light from a distant star is collected by a concave mirror. How far from the mirror do the light rays converge if the "radius of curvature" of the mirror is 150 cm?

EXHIBIT A

Depress mouse to view answer.

2. Suppose your teacher gives you a concave mirror and asks you to find the focal point. Describe the procedure you would use to do this.

Depress mouse to view answer.

NEXT >>

EXHIBIT B

USD
THE UNIVERSITY OF SOUTH DAKOTA
Heimstra Human Factors Laboratory

Pilot Study

Characteristics of the Ergoknife with Thumbgrip handle

December 5, 2004
By
Kevin Limrick
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Abstract

Subjects were asked to evaluate the comfort and mechanical characteristics of a new knife handle. Each subject was asked to perform cutting tasks and rate their perceptions. The Ergoknife with Thumbgrip handle appears to provide more comfort and more blade control. An in depth study has been requested.

Methodology

This pilot study was small in scale (only 5 subjects), yet we yielded some very promising results. Essentially we had each subject cut pieces of a clay-like substance using either the ergo knife or a standard kitchen knife. We measured individual differences, such as hand strength, hand width, and hand length, as well as performance measures such as how many slices each person could cut in one minute, and the force they exerted while cutting. We also gave each subject a questionnaire to fill out in regards to: the comfort level of the grip on the knife they were using, and how much control they felt they had over the blade they were using. We also asked them to subjectively assess (on a scale from 1-7) how much stress they felt on their forearm and hand during the cutting process. Below is a table of the results from this pilot study:

Subjective Assessment: Rating Scale

Scale from 1 to 7 (1 = worst, 7 = best)

Subject Questionnaire:

1.) Rate the stress felt in your hand
2.) Rate the stress felt in your forearm
3.) Rate how comfortable this grip is
4.) How easy was the blade to control

Overall Findings:

	Ergo Knife (variable)	Standard Knife (control)	Ergo Knife Difference (effect)
Force (lbs.)	10.0	16.1	6.1 lbs less force to cut
Slices / min.	9.4	8.3	1.1 more slices per minute
Stress (hand)	5.0	2.3	2.7 increased hand comfort
Stress (forearm)	5.0	2.5	2.5 increased forearm comfort
Grip Comfort	5.7	3.0	2.7 increased grip comfort
Blade Control	5.8	3.2	1.8 increased blade control

Discussion

As noted previously, the results look promising, however as I am sure Dr. Berkhout as mentioned we are planning on taking this a few steps further. Firstly we will need to evaluate comparable blades set in comparable (as close as possible) handles. We will also want to quantify stress levels in the hand and forearm by use of an electromyograph. At this point, we have completed the necessary paperwork needed to begin a full study of this product. This next potential study will need to be reviewed and approved by the Human Subjects Committee here at USD but barring any unforeseen obstacles we will begin a larger study of this product once approval has been given. If you have any further questions, feel free to email myself or Dr. Berkhout.

Amendments to the Drawings:

The attached drawing sheets, annotated drawing sheet three of four ("3/4"), and replacement drawing sheet 3/4 includes Figs. 4, 5, 6, and 7. The changes shown in annotated drawing sheet 3/4 (and included in replacement drawing sheet 3/4) include changes to Figs. 4, 5, and 6 which are:

For Fig. 4, the sign line, reference numeral, and location of the centerline 54 of Fig. 6 have been added.

For Fig. 5, the sign line, reference numeral, and location of centerline 54 of Fig. 6; the sign line, reference numeral, and location of the principle axis of the concave recess 50; and the sign line, reference numeral, and location of the center of curvature of the concave recess 50 have been added.

For Fig. 6, the sign line, reference numeral, and location of the vertex of the concave recess 50 have been added.

No new matter has been added by way of amendments to the drawings.

Attachments: Replacement Sheet
Annotated Sheet